School Shop

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JUNE, 1948

England Revamps Technical Schools
by Percy Dunsheath

A Glass-Top End Table
by Kenneth G. Wise

No School Shop Is Ever Safe
By H. B. Jones

Planning the School Shop

On the cover: Students in the building-trades class at Tottenham Polytechnic School, England. For a description of British trade education see pages 5-7.

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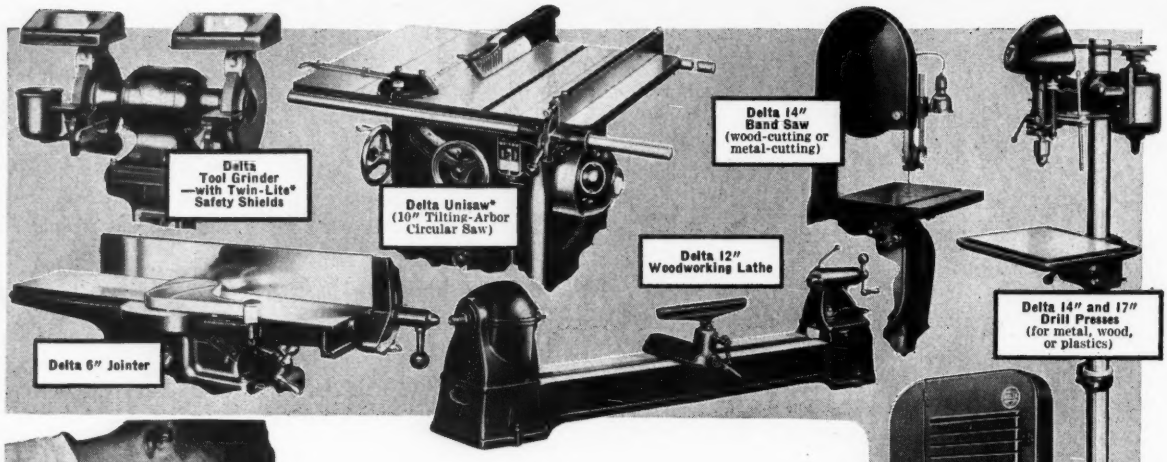
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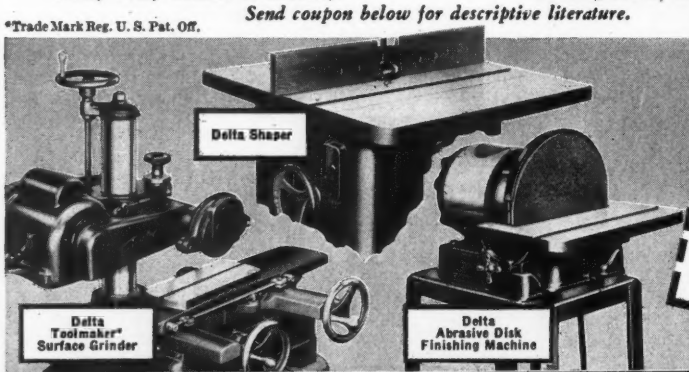

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School Shop

FOR INDUSTRIAL EDUCATION TEACHERS

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School Shop TALK

COMMENTS ON ISSUES FACING INDUSTRIAL EDUCATION

Vocational Education Becomes Respectable—Even in Colleges

By Thomas Diamond, Professor of Vocational Education, University of Michigan, Ann Arbor.

VOCATIONAL educators should be happy to discover that the type of education they advocate has at last become respectable. It is true that this discovery dates back to 1946, but the fact that the U. S. Office of Education has seen fit to reissue Bulletin No. 18—*Vocational Education of College Grade*—indicates that there must be some merit in training people for jobs. Then too, it is significant that this training has been taken out of the school basement and has been given a place within the sacred halls of our universities.

It is interesting to note that the National Advisory Committee on Vocational Education of College Grade which, presumably, sponsored this publication is made up of 35 members, only one of whom would be recognized as belonging to the field of vocational education. We find college presidents, directors of research, a dean of engineering, a dean of a medical school, representatives of industrial management, as well as other important people from various fields more or less related to education. This appears to indicate that college people are beginning to recognize their responsibility for providing training opportunities for all young people of college age, and not solely for those who wish to work for a degree.

In the "definition" presented in the bulletin, distinction is made between vocational education of the Smith-Hughes type and vocational education which produces the *breadth of understanding and knowledge* which is usually found in college curriculums. If this implies that this breadth is unnecessary for the designer of machines, the toolmaker, or the mechanic who tests and adjusts the complicated equipment of a "Constellation," then those who prepared the definition have much to learn. Regardless of this, however, it is a distinct step forward when college people indicate a desire to provide on their campuses training which is designed to prepare people for competency in occupations on a subprofessional level.

Another mark of progress appears on page three, where the committee announces boldly that completion of high school is not necessary for entrance into the vocational course, provided the student shows evidence of interest, is sufficiently mature, and has the potential ability to profit from the course. It would seem that this suggests to the school administrator, who has established the 13th and 14th grades, that all classes on these levels should be open to anyone who can profit from them.

We note further, on page 4, that the college—or high school—must serve the educational needs of *all* who wish and who can profit from the courses offered. To meet the varying needs of those who attend, the authors maintain that the colleges must have curriculums of various lengths, leading to all sorts of occupational ends. When these ideas were presented by vocational educators three or four decades ago they were looked on as being radical. If they had been proposed at that time by the learned presidents and deans who sponsored the bulletin they would have been accused of heresy and, undoubtedly, would have been burned at the stake. We rejoice that progress is being made, and that the long years vocational education has been incarcerated in the educational doghouse appear to be at an end.

The Earlier the Better

Teachers' meetings, whether entire faculty, departmental, or committee, can be the bane of the teacher's existence or a source of inspiration and help. The latter is true when the meetings are well planned and result in purposeful action and, we hasten to add, they are held at a reasonable hour.

At the tag end of the day, teachers and administrators are weary and fretsome. The results of such meetings are likely to mirror the condition of the participants. Earlier in the day this situation does not exist.

If a meeting is worth holding, it is worth holding on regular school time when the people involved will be happy about it.

Your Editor

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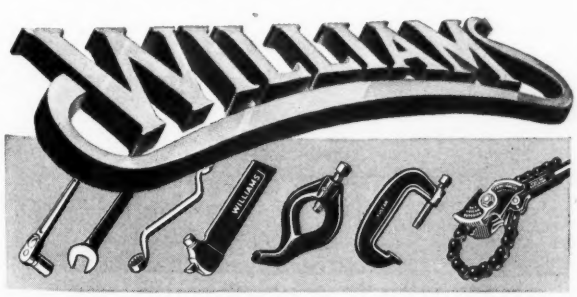

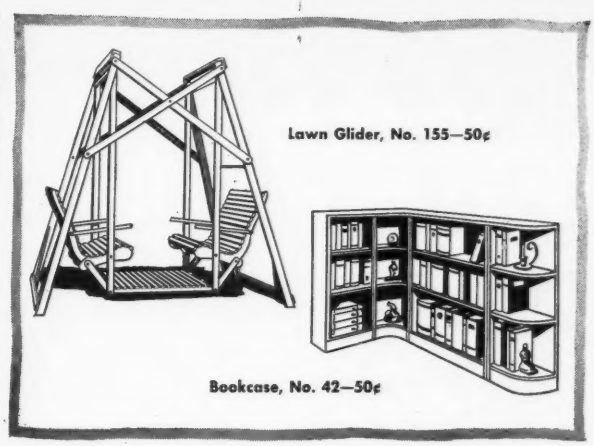

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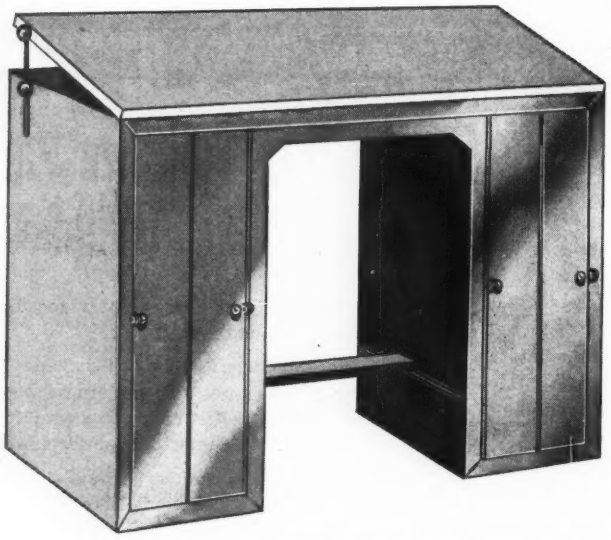

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England Revamps Technical Schools

New Education Act Introduces Original Plan for Younger Youth

BY *Percy Dunsheath*

Revolutionary changes are being made in England's educational program. Dr. Percy Dunsheath discusses here the plans for technical education. He is past President of Britain's Institute of Electrical Engineers and member of many British educational bodies. This material was originally presented as a talk over the BBC.

IN a highly industrialized country like Britain, the position of technical education is of vital importance. It is not surprising, therefore, that during the past half-century considerable attention has been given to technical schools for juniors who have not yet entered industrial employment, although in many areas the provision has been inadequate.

Our new Education Act, passed by Parliament in 1944, introduces original conceptions of technical education in the lower age range. Before considering the present and future position, however, it will be helpful to glance over the past few decades, during which a sound foundation has been laid in what have been known as the junior technical schools.

Up to about the turn of the century, the problem facing the educationalist was the primary one of stark illiteracy —the paramount need for even the most elementary education. But about that time the great progress of scientific discovery and the development of industries based on science demanded something much more than reading, writing, and arithmetic. In 1905, Britain's Board of Education, as it then was, gave official approval to public expenditure on day-time technical education for post-elementary pupils, and by 1913 junior technical schools arrived definitely on the map, by the issue of formal regulations.

As time went on, these junior technical schools, or J.T.S. as we call them, attracted a larger proportion of the more intelligent pupils, but a change took place at a later date when the break at 11, for transfer to secondary schools, was introduced. The nonvocational secondary school assumed a more respectable status, and this contributed to the black-coated (known in America as the "white-collar") complex, by which we mean that people get an idea that it is better to work in an office than to do skilled practical work. This misconception operated to the detriment of technical education.

Before the second world war there were about 200 junior technical schools carrying about 24,000 pupils. Half the total number of schools prepared boys for industry, without restriction to particular trades, most of them being intended for the engineering and building industries, though chemical, mining, and others, took a considerable proportion.

Trade Schools

The second group of schools, known as trade schools, catered to three times as many girls as boys, and aimed at specific occupations such as cabinet-making, printing, tailoring, women's needle trades, meat trades, musical-instrument making, etc. In some cases 50 percent of the total school time was devoted to the actual craft work.

Trade schools were almost entirely confined to the London area. Commercial subjects were also provided by some 50 junior commercial schools, operating under the same regulations as the J.T.S., in which shorthand, typing, and clerical subjects occupied the chief part of the curriculum.

Junior technical schools were distributed rather irregularly throughout the country, and some 60 areas had no such schools of any kind, 22 of them having populations of over 100,000.

Social Studies Stressed

The position of the junior technical school in England today is very much as it was prewar. Up to the present, it has not been found possible to implement the Education Act of 1944 so that its influence could be felt. New buildings are urgently required, as well as a reorientation of public opinion on the importance of the technical side. Signs are not wanting, however, that the awakening is taking place. The junior technical school is not well known to the

Students at Tottenham Polytechnic School, England, learning copper-pipe welding, forming of pipe, and lead burning.

Young bricklayers learning the trade at Tottenham Polytechnic School, England, where a three-year course is offered.

public, and there lingers in some quarters a sense of inferiority in vocational instruction relative to academic learning. Although J.T.S. courses are largely vocational, emphasis is always placed on such social subjects as English, history, etc., and the greater part of the time is devoted to noncraft subjects. There are, of course, distinct advantages in allowing these subjects to live alongside, and in close touch with, the more practical ones. There is, moreover, much less tendency in the technical schools to cram for public examinations, and we all know that the majority of the human race can benefit enormously from the exercise of mental activity, even where there is no examination at the end.

The question of accommodation is a cause for concern, for the premises occupied by some junior technical schools in England are a disgrace to an industrial country, and it is greatly to the credit of the army of technicians and technologists who have risen to important positions in British industry, that they have done so after getting their first steps on the ladder through the J. T. S. Even in peacetime internal amenities were lacking; the premises were often restricted for space, with quite inadequate laboratory and gymnasium facilities. Today, after the blitzing of neighborhoods where most of them were situated, the conditions are often deplorable. Fortunately, the way has been shown by a number of new schools, completed just before the war.

Industry Cooperates

An important feature of the J.T.S. has been the close contact both with industry and with the senior technical institutions. Advisory committees and boards of governors usually include numbers of representatives of local industry who willingly give up time from a genuine interest in furthering the progress of the school. Visits of officials and boys take place between the schools and the works in the area, and many a lad has been introduced to the type of work suited to his inclinations through these contacts. Many of the staff now holding responsible positions in the schools were attracted to teaching from industry, and have contributed in no small measure to the success of the J.T.S. Our thanks are due to them. Where the school is housed within the technical college building, the use of classrooms, workshops, etc., is shared between junior and senior pupils and many of the J.T.S. staff assist with the adult instruction in the evening. The importance of these factors will be appreciated when it is recognized that through further education, instruction to National Certificate level, and opportunities for technical courses at the universities, many of the pupils ultimately reach the highest positions in industry.

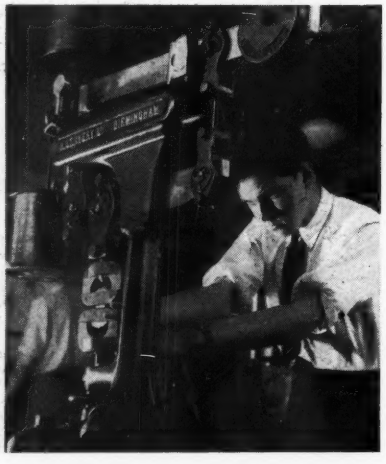
So much for history. As has been the case in the past, the recent war gave an impetus to educational advance, and stressed the need to put technical education on a much broader basis.

New Secondary Schools

Previously, only a portion of children in the state schools were able to attend secondary schools. The technical school was designed for pupils beyond the age of 13, but now secondary education is provided for all children from the age of 11 up to 15. Naturally, the present time, following as it does a long period of destruction, is not the most suitable for implementing such an ambitious scheme. An extensive building program is envisaged, which must take its turn with housing and other demands for material.

Three main types of secondary school are contemplated: the grammar school, the technical school, and the modern

English technical-school student running a tensile-strength test on cement.



English boys learning building-construction drawing in a school specializing in training for the building trades.

school. It has been assumed that at the age of 11 children have disclosed individual interests and aptitudes which enable them to be allocated to one or other of the three types of schools. Already, however, it is clear that the practical distinction between the three main types cannot be as rigid as envisaged, and important discussions are taking place with a view to arriving at the solution. These investigations are centered around the form of school. Instead of the unilateral grammar, technical, or modern school, some authorities favor multilateral schools in which all three are combined. The London County Council has adopted the title, comprehensive high school, while many other variations are in review by those who have the opportunities for experimenting provided by the new act. While it is too early to predict the ultimate solution of this search, it is gratifying to know that in all the discussions the great importance of technical education is now appreciated as never before, and the satisfactory succession of the junior technical schools is assured.

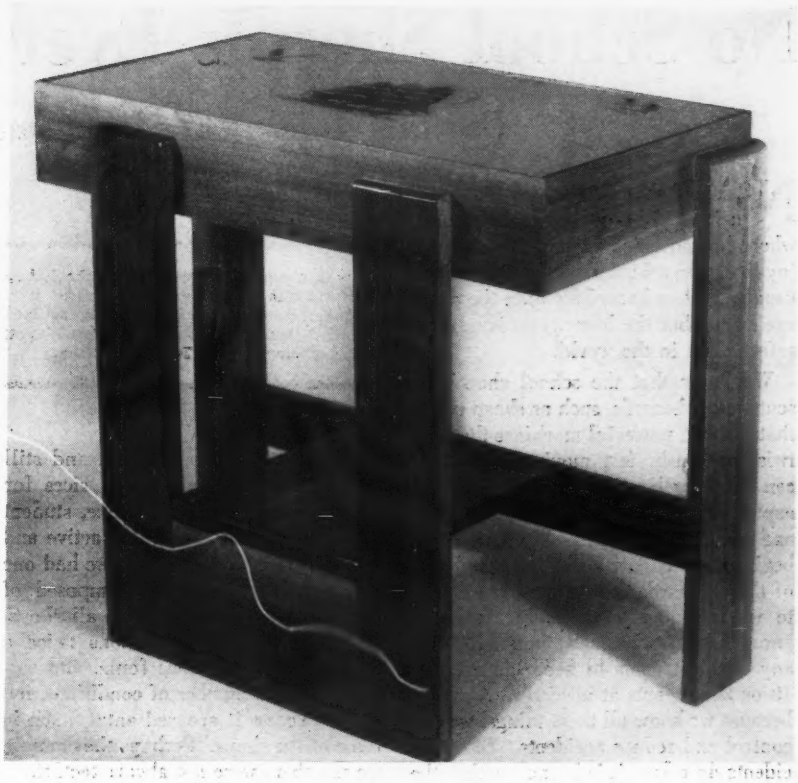
Let me now quote you from the official program: "The unprejudiced visitor to a J.T.S. will admit that it is giving a more truly cultural education than many institutions which make greater pretensions in this respect."

In conclusion, may I say that, as an industrialist, and as one absolutely convinced of the dependence of British industry on the quality of the education provided for all ranks, I look on the present period as one of the most pregnant in educational history. If we can find the correct position in education for technical studies, if we can ensure the best and broadest education for those who will carry responsibility at all levels, then indeed shall we have secured the continuance of that great tradition on which British industry has been built.

A Glass-Top End Table

BY *Kenneth G. Wise*

Here is a popular project for woodworking students that can be used to teach industrial-arts, both on the skills and information levels. Kenneth G. Wise teaches at Westerville High School, Westerville, Ohio.



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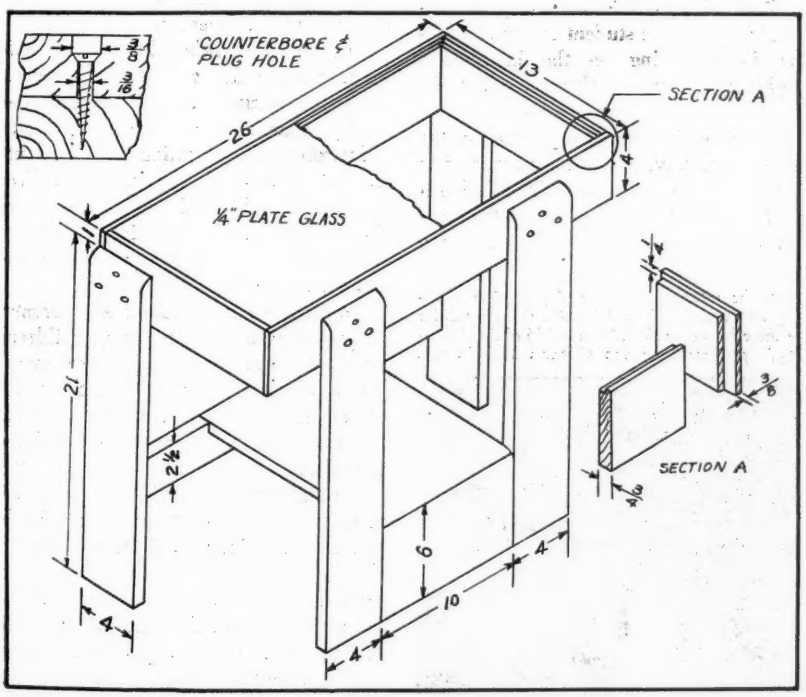
The corners of the top pieces are glued and nailed. The nail holes are filled with a matching stick shellac which is burnt in, then rubbed down to the wood with No. 00 wet sandpaper.

To finish, sand smooth with No. 0 sandpaper. Use tack rag to pick up any dust and apply a wash coat of clear shellac (very thin). Let dry. Then steel wool until smooth. The second coat is sprayed clear lacquer. When dry, rub down with fine steel wool or No. 00 wet sandpaper. The final coat of lacquer is sprayed on, allowed to dry, and then rubbed down with rotten stone and water. Wax with paste wax to produce a beautiful finish.



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No School Shop Is Ever Safe—

But this 4-point program makes it safer than home

BY *H. B. Jones*

Safety is always relative, but the school shop can be made a relatively safe place if a consistent program is followed as outlined here. H. B. Jones is Shop Supervisor at Wolcott Technical School, Torrington, Conn.

NO school shop is ever safe. But then, neither is any other place safe where human beings work, live, and enjoy life. The school shop should be, and usually is, less hazardous than the average home, but the home, too, is not the safest place in the world.

We know that the school shop presents many hazards, such as sharp edges that can cut, powerful machines that can twist or crush, fast moving parts that can catch or break and fly, hot flames, explosive gases, poisonous compounds, and electrical dangers. We know that beginning students have no knowledge of these hazards nor do they know how to work among them safely. We also know that it is physically impossible for any one instructor to keep his eyes on 18 or 20 students at all times. And yet, because we know all these things, we can control and reduce accidents. When accidents do occur, it is because either the teacher grew careless and did not properly instruct his students, or the student wilfully or carelessly did not follow the teacher's instructions.

To say that accidents happen when we least expect them is, of course, stating the obvious, because if accidents were expected we could readily prevent them. However, through the years, it has been my experience that serious accidents are more likely to occur after a long period that has been accident free. Reasonably safe conditions are the reward of constant vigilance but men tend to relax when the need of vigilance is not apparent. Although far from desirable, a serious accident is an effective way of making a school safety conscious.

In general, it appears that a few minor cuts with hand tools may serve to innoculate a boy against serious accidents. The boy who cuts his finger with a chisel gains a respect for sharp tools which is more effective than any amount of warning or instruction.

Occasionally, we find a boy who is definitely susceptible to accidents. He continues to have minor accidents in spite of experience or any instruction that we are able to give him. There may be some way to cure these individuals but I have not found it. Our present procedure is to transfer these boys into other less hazardous fields of work while they still have the usual number of arms and legs.

Safety Promotion

We have used in the past, and still use, a number of common devices for promoting safety. At one time, student safety committees were quite active and were of some help. At first, we had one school safety committee, composed of student representatives from all shops, which made shop inspections twice a month. This committee found and corrected quite a number of conditions, but in the process it aroused antagonism in some of the shops. Perhaps the committee members were not always tactful.

When we reached the point where the good of the committee was overbalanced by the feelings aroused, we changed the program so that we had a separate shop safety committee within each shop. These functioned with varying degrees of success for a period of time. But gradually the committee could no longer find new things to correct, interest died, and the committee became dormant.

It is quite possible for a shop instructor to feel that a student safety committee is infringing on the instructor's rights and responsibilities or that the committee recommendations are criticisms of the instructor's operation of the shop. Certainly, where the instructor is safety conscious, the committee finds little to keep it active; and where the committee finds much, the instructor is not likely to cooperate with the committee to any great extent.

Note the safety precautions of protective clothing and eye shield used by this student welder in the educational film, "The Inside of Arc Welding," produced by the General Electric Co.

We have used safety posters and when a new one is put up apparently most of the students notice it. However, after three or four poster changes, only a few students seem to notice the new posters. Too often it appears that the students who most need safety instruction don't bother to look at the posters.

We have also tried various methods of safety awards. These seem to stimulate considerable interest for a while, although the greatest interest seems to be among those who need the instruction least.

In considering the devices that we have used, I believe that they all have merit but that no one device should be used continuously. While each is new, it arouses interest, but all too soon it becomes an old story.

Individual Approach

At present, our safety program is based on an individual approach, rather than mass appeal. Our first consideration is the physical health of the student. A student who cannot see clearly or hear well or who is suffering pain from decayed teeth is not a safe worker. To avoid these conditions, all entering students are given complete physical examinations including blood tests and urinanalysis by our medical adviser. Eyes are examined with the telebinocular and hearing is checked with an audiometer, chests are X-rayed, and teeth are examined yearly. However, examinations are valueless unless something is done about the corrections that are indicated. We have an unauthorized but effective rule that all indicated corrections must be treated without delay, if the student is to remain in school.

To date we have found all parents willing to cooperate in giving children proper medical care. In the few cases where parents could not afford the costs of the necessary work, we have found that several social agencies were willing to underwrite the costs.

All students attend physical development classes as part of their school work. The primary objective of these classes is the improvement of muscular control and coordination. Where boys are going through the awkward stage, I believe that these physical-education

(*Continued on page* 10)

Planning the School Shop

A Check List of Points to Watch

This list of pointers on school shop planning has grown out of requests from shop teachers and administrators to the Illinois State Department of Vocational Education for help. These are general suggestions, but they will be useful in appraising the details of a specific shop plan. The list was prepared by the Illinois State Department of Vocational Education, E. J. Simon, Director.

Shop Physical Conditions

1. Determine the amount of floor space required by the type of shop and number of students to be accommodated.

2. Avoid locating shops in basements where machines and tools will be exposed to excessive moisture.

3. In general, shops should be so planned that the length will be from one and one-half to two times the width, and not less than 30′ in width.

4. All parts of the shop should be visible to the instructor.

5. One entrance to the shop should be large enough to permit the entrance or removal of any shop equipment or project likely to be made in the shop. Double doors that open to the outside are desirable for a large shop entrance.

6. The shop areas for one type of activity should be adjacent to each other and on the same floor level if possible when one instructor is in charge.

7. Floors should be adapted to the type of shop being planned and be made of a material which will not become slippery when worn. Avoid concrete when possible, except for auto shops and hot-metal working areas. Earth floors should be used in foundry areas.

8. Interior partitions in a shop building should be constructed so that they may be removed or changed at a later date without affecting the building support.

9. The windows should extend to the ceiling from a point as low in the wall as practicable. The window area should be more than one-fourth of the number of square feet in the floor area.

10. Student lockers should be located inside of the shop and be recessed in the walls.

11. Provide adequate storage space for supplies and projects. The space should accommodate standard sizes of materials.

12. Locate tool crib or panels so as to avoid excessive travel from work stations to the tools.

13. Construct transparent partitions between shops and auxiliary rooms.

14. Walls and ceilings should be a light and pleasing color. A color reflection chart should be referred to for amount of light reflected by various colored surfaces.

15. Shops should be adequately lighted. In determining proper lighting facilities, secure the recommendations of a competent lighting engineer.

16. Provision should be made for the removal of chips, sawdust, grinding dust, exhaust gases, welding gases, paint fumes, vapors, and water drainings.

17. Provide adequate electrical power service for the equipment to be installed. Provision should be made to supply power to additional equipment that may be added to the shop at a later date. Provide flexibility in the power wiring so that machines may be moved if necessary.

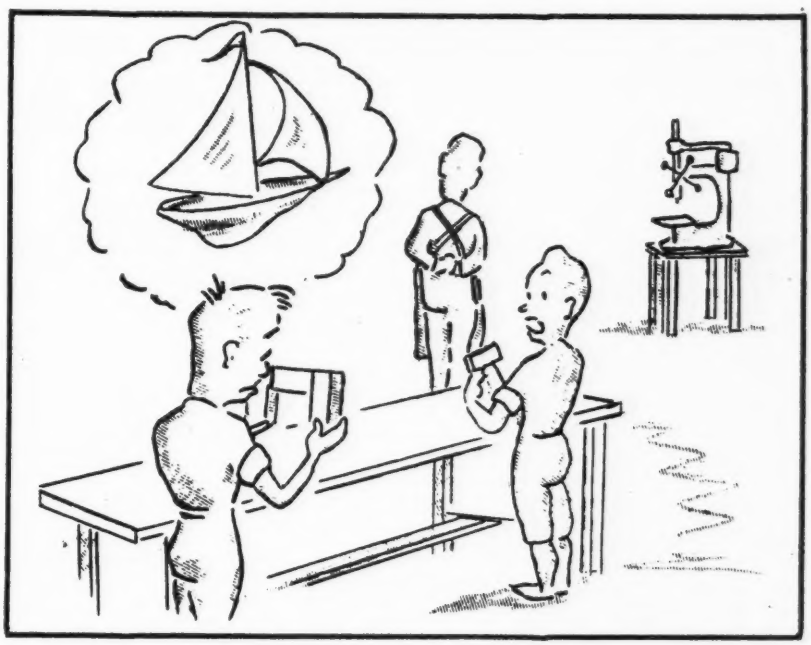
18. An adequate number of electrical

(*Continued on page* 10)

Leaders (?) in Industrial-Arts Education

By Marcus Fitzgerald

Fundamentals Bob



"You're not supposed to enjoy this stuff. It's like medicine; it ain't good for you if it tastes good."

FUNDAMENTALS Bob believes he has been able to enumerate all the fundamentals in the field of industrial arts. This conclusion has been reached after lengthy reflection based on his own experience. The fundamentals which Bob has enumerated pertain to the subject matter in the field; little regard has been shown for the learner.

Fundamentals Bob started out his teaching career by providing a rather rich industrial-arts program and he encouraged pupil planning. As time went on, Bob considered this a hard way to teach and found that some things of apparent importance were missed. He documents the latter point by citing an instance where a boy in advanced woodworking built a kayak. The kayak had only three different types of joints. A small upholstered footstool which Bob tried to urge on the boy had twice as many different joints.

Fundamentals Bob is convinced that pupils aren't as eager to learn as they used to be because they prefer to make kayaks and such in preference to footstools. Bob has the problem under control, however, because through ferreting out the fundamental operations, the pupil must either make a teacher-selected project or the pupil must find an alternative which includes the same fundamentals. To date no pupil has.

power receptacles should be installed to accommodate all portable electrical equipment.

19. Provide washing facilities for students. Industrial-type wash-up fountain is highly desirable.

Equipment Selection and Arrangement

1. Secure modern equipment representative of the type that is used in industry.

2. Select only machines that have the necessary safety guards. For example, grinders are sold without proper eye shields or guards.

3. All pieces of equipment should have individual motor drives. Avoid combining equipment such as a circular saw and jointer on one base.

4. Arrange the equipment to permit free and safe use of the aisles.

5. Place machines in the normal sequential order of their operation for most work to be performed.

6. Avoid placing machines on columns or pipes which will transmit sound to other rooms.

7. Locate machines so as to accommodate maximum-sized materials.

8. Ground all power machines and wire strictly according to the National Electrical Code.

9. Provide necessary dust collectors for individual machines where needed.

10. Individual lights should be incorporated as an integral part of the machine whenever possible.

11. Before definitely locating the equipment in a school shop, the plan of constructing floor space cut-outs for each piece of equipment, drawn to the same scale as a sketch of the floor space available, is most helpful. These cut-outs, representing the various machines and benches, may be placed on the drawing, and by considering all the factors of shop planning, including local conditions and limitations, the best arrangement can more easily be determined.

General Safety Factors

1. Avoid having student work stations where exposure to gas fumes and other hazards may affect the health of the students.

2. Have fire extinguishers of the correct type readily available.

3. Provide safety containers for inflammable materials.

4. Paint safety zones around dangerous machines.

5. All machines, belts, and pulleys must be properly guarded at all times.

6. Provide proper eye protection. This will include guards, shields, or individual goggles for grinding operators, and approved shields and goggles for arc and gas welding.

7. Nonskid areas should be provided on floor for machine operators to stand on while operating dangerous machines.

8. Place first-aid supplies where they may be easily found.

9. Provide for a master electric-power switch controlling all machines in the shop that may be locked with keys.

SPANNING ALL YOUR
HAND TOOL REQUIREMENTS!
This fine Hand Tool Assortment—the 103-piece SUPER SERVICE SET by New Britain—offers your students all the Tools for every standard job in the shop. They'll find famous New Britain Sockets, in 3/8", 1/2" and 3/4" drive, plus a full collection of sturdy Drive Parts. They'll find Flat Wrenches, Pliers, Screw Drivers, Hammers, Chisels, Punches . . . every basic Hand Tool for day-to-day needs, plus many Tools adaptable to specialized work in the School Shop! And each Tool is a revelation in tough, time-saving utility! . . . picked with care to make this Set a balanced, hard-working team . . . a workshop in a box! Write for the facts about this superb Set . . . TODAY! The New Britain Machine Co., New Britain, Conn.
The complete New Britain Line for Automotive, Aircraft, General Maintenance & Production Needs is sold by leading jobbers.
New Britain
GREATER STRENGTH · BETTER FIT HAND TOOLS

Safety . . . . . *from page* 8

classes are a definite part of a good safety program.

Four Steps

As I see it, the first step in operating a safe shop is to have the students in good physical condition to work safely. The second step is to have the equipment and work areas in safe condition. This means purchasing equipment suitable for the work, having an orderly and uncrowded arrangement, as well as necessary guards and safety devices. The third step is thorough instruction before a boy performs any operation. The final, and perhaps most important, step is for the instructor to maintain eternal vigilance.

Instructor Has Responsibility

In the final analysis, the responsibility for safety in a school shop is directly on the shoulders of the shop instructor.

(*Continued on page* 12)

FINE TRAINING...

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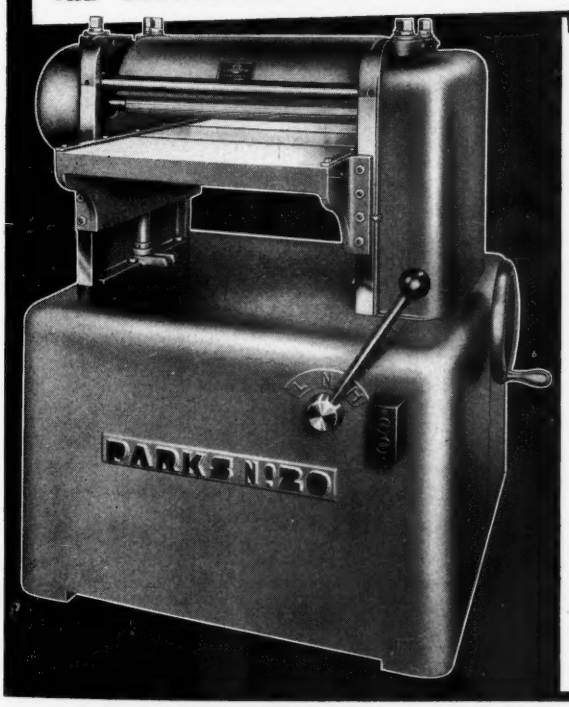

PARKS No. 20
20" PLANER

Here is a modernly designed, rugged, high-speed, low-priced planer that is ideally suited for school shops and all industrial plants requiring a quality surfacer. The Parks No. 20 Planer has a four-knife cutterhead with a speed of 3600 R.P.M. and offers two feed speeds — 20 and 40 F.P.M., and 40 and 80 F.P.M. Write for complete descriptive literature.

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In industry, adult safety committees may accept considerable responsibility, but in the school, although student participation on the safety committee provides good safety education, the responsibility still remains with the instructor.

The instructor should think safety whenever he is planning a new lesson; he should talk safety in every presentation; he should plan safety with every piece of new equipment; and he should see safety whenever he looks at his students, his shop, or his tool crib.

(Reprinted by permission from the *School Shop Safety News Letter* of the National Safety Council.)

NEWS

What's Doing in the Field of INDUSTRIAL EDUCATION

Fryklund Honored

FOR exceptionally meritorious service during World War II in training personnel for the armored forces and for improving the effectiveness of armored combat units, Dr. Verne C. Fryklund, president of the Stout Institute, was recently awarded the Legion of Merit. At the time of his discharge from the Army, Dr. Fryklund was a colonel and in charge of the civilian training program of the Army Air Forces in the continental U. S.

Ludington to Office of Education

THE new specialist in industrial arts in the U. S. Office of Education, John R. Ludington, will begin his duties in Washington about the middle of this month. He was formerly professor of industrial-arts education, North Carolina State College, and North Carolina state supervisor of industrial arts.

Photography for Teachers

THE Rochester Institute of Technology has announced a summer course in photography for teachers in secondary schools. Further information may be secured from C. B. Neblette, supervisor, Department of Photographic Technology, Rochester Institute of Technology, Rochester 8, New York.

Kepler Given Award

IN recognition of his contribution to the development of drafting as an industrial-education subject, F. R. Kepler, retired supervisor of vocational education in the Detroit, Michigan, schools and professor of industrial education at Wayne University, was recently given the Cleo Murtland Award by the University of Michigan at the annual convocation of the School of Education. The presentation was made by Professor Thomas Diamond, head of the department of vocational education at the University of Michigan.

New Building Planned

VOTERS of Arkansas City, Kansas, have approved a bond issue for a junior-college and trade-school building which will provide facilities for instruction in woodworking, machine shop, sheetmetal, electricity, printing, and other subjects. The building will enable the schools to offer terminal courses for young men and women expecting to enter industry rather than the professions.

Photography Salon

THE graphic arts department of Tucson, Arizona, Senior High School sponsored a salon of photography at the Arizona State Museum at the University of Arizona last month. The presentation was under the direction of advanced students in photography from the classes of Harry A. Goldstein.

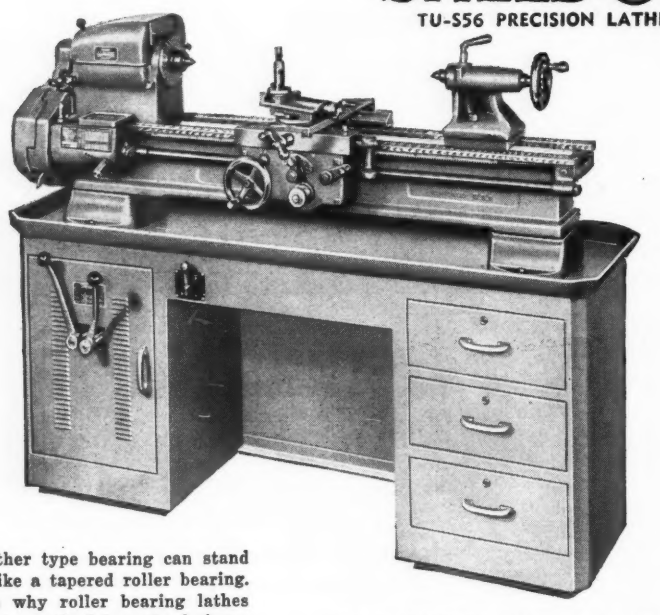
Correction

Inadvertently, the following listing was omitted from our April "Suppliers Directory." Please add the following company, under two categories—

Audio and Visual Aids, P. 16, and Projectors and Equipment, P. 27:
Radiant Manufacturing Corporation
2627 West Roosevelt Road
Chicago 8, Ill.

SHELDON

TU-S56 PRECISION LATHES



No other type bearing can stand abuse like a tapered roller bearing. That is why roller bearing lathes are most practical for school shops.

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Features

Safety	Fully enclosed headstock and drive. (All speed changes are made by outside levers.)
Capacity	11¼" Swing, 1" Collet Capacity, 56" Bed.
Practicality	Standard big lathe design, controls and features.
Welded Bench	With 3 independently locking drawers for students' aprons, micrometers, and work.
Moderate Price	Built in a modern specially tooled plant with the finest most modern equipment this quality lathe can be sold at a moderate price.

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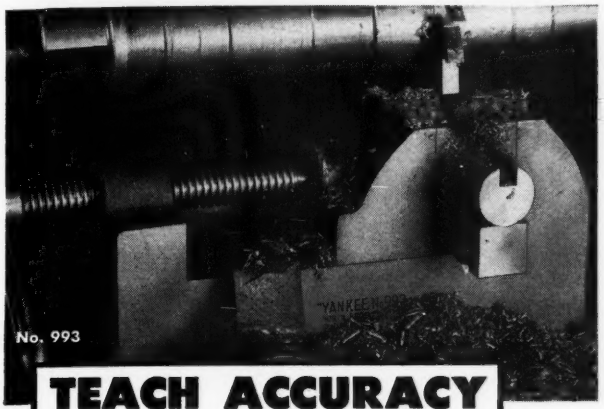

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● Your work is always accurately lined up in a "Yankee" Vise. Carefully machined . . . top, bottom, sides and front end for use in any position. Makes convenient, economical jig. For handling rounds, each vise is furnished with V-grooved, hardened steel block. Four sizes of "Yankee" Vises . . . 1½", 2", 2¾" and 4" jaw widths. Same sizes also available with detachable swivel base for bench use.

Is the "Yankee" Tool Book on your shop shelf? FREE!

YANKEE TOOLS NOW A PART OF
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THE TOOL BOX OF THE WORLD

NORTH BROS. MFG. CO.
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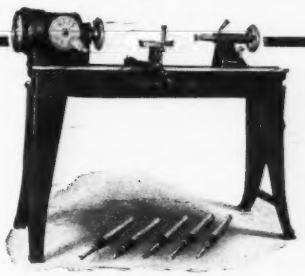
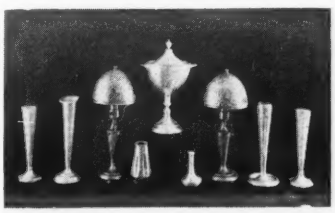
"OLIVER" Metal Spinning Lathe

A "must" for progressive shops

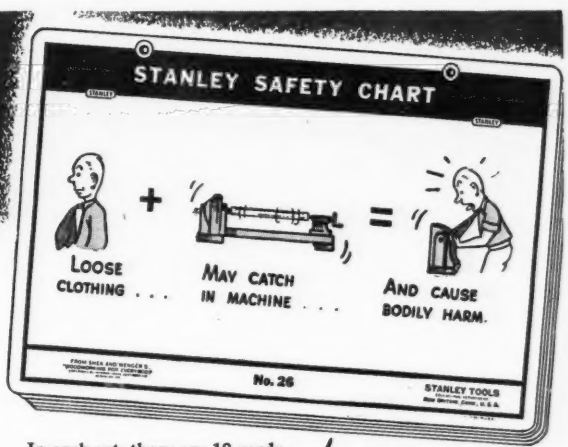


Students learn quickly to spin practical articles of surprising beauty from aluminum, bronze, copper, etc. Its smooth flow of power spins 20-gauge steel with ease. Has heavy bed, extra large bearings, live tail center. The ball bearing motor-driven headstock is adjustable from 800 to 2400 RPM. And for wood turning, this Lathe is unmatched. **Write for Bulletin No. 159M.**



OLIVER MACHINERY COMPANY, GRAND RAPIDS 2, MICH.

NEW! STANLEY SAFETY CHARTS



A Series of 36 Pictorial Wall Charts to Promote Safety in the Use of Tools and Machines in School Shop

It is important that your students – the skilled tool users of tomorrow – be trained in ways of safety as they learn the use of tools and machinery. These charts put this idea across with simple, graphic emphasis. To promote safety in schools, as well as in future work, Stanley offers this series of charts at cost of printing and postage. No finer investment could be made in school shop training. ORDER A SET TODAY!

In each set, there are 18 cards, printed in colors on two sides – 36 charts in all. Charts are mounted on heavy cardboard, lacquered for easy cleaning, and have metal grommets for hanging.

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School Shop KINKS

Payment will be made for each Kink published. Send to the Editor, School Shop, Ann Arbor, Mich.

Do It In Your Head

In layout work and in mechanical drawing where dividers and compasses are used, it is a help to be able to figure a half of dimensions (usually mixed numbers) mentally. This can be learned easily and saves time in setting dividers or compasses to a required radius that must be worked out from dimensions which are given as diameters of circles or holes.

Mixed numbers, of course, are made up of whole numbers and fractions such as $3\frac{5}{8}$, $7\frac{9}{16}$, and $8\frac{3}{8}$.

The procedure when the whole number is *odd* is to divide the whole number by two and drop the remaining fraction. Add the denominator and the numerator of the fraction to form a new numerator. Then double the denominator for the new denominator and you have the answer.

For example, find half of $7\frac{9}{16}$. Half of 7 is 3. Drop the fraction, $\frac{1}{2}$. Add the denominator, 16, and the numerator, 9, to form the new numerator, 25. Then double 16, the denominator, to find the new denominator which is 32. The answer is 3-25/32.

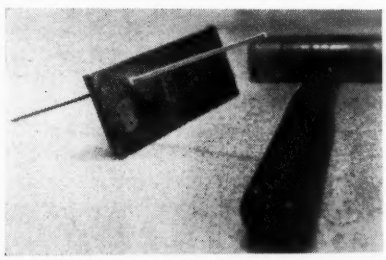
The procedure when the whole number is *even* is to halve the whole number. Then leave the numerator as is and double the denominator of the fraction to get the answer.

For example, find half of 12-15/32. Half of 12 is 6. Leave the numerator, 15, as is and double the denominator, 32, which gives 64. The answer is 6-15/64.—*Michael G. Hritz, Vocational School, McKeesport, Pa.*

Make Your Own Dowels

Oftentimes it is difficult to obtain the size of dowel needed for a particular job. The procedure outlined here makes it easy to prepare short dowels to meet your specifications.

Drill a hole $\frac{1}{16}$" larger than the size of the dowel required in a piece of cold rolled steel $\frac{3}{8}$" thick and $1\frac{1}{2}$" wide. Grind off the face so that there will be a clear sharp edge on the hole.



Select wood of good straight grain and, after sizing to the diameter of the hole, drive the material through the plate with a soft-faced hammer or mallet. Saw ends smooth. The dowel will be $\frac{1}{16}$" oversize which allows for finishing.

Long pieces of material, if small in diameter, will break easily in the driving process so it is suggested that short lengths be used when the diameter is small.—*William H. Freeman, Straubenmuller Textile High School, New York, N. Y.*

Shop-Made Drills

In industrial-arts shops it is often impractical to keep the large supply of drills on hand that is required for drilling pilot and anchor holes for screws. We meet this problem by keeping a nail clipper to cut off the heads of nails which are then used as drills. They may be flattened and sharpened, if desired.—*H. E. Ketterling, Huron, S. D.*

WANTED

Good manuscripts, particularly on radio and electricity, automechanics, and woodworking. Send to the Editor, School Shop, Ann Arbor, Mich.

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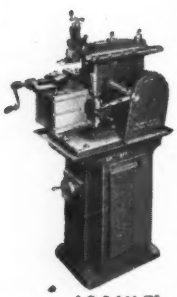

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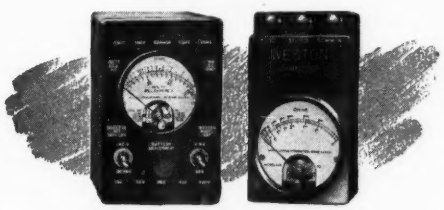

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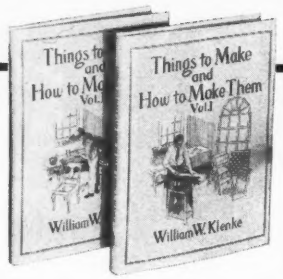

THINGS TO MAKE AND HOW TO MAKE THEM *Klenke*

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Workbook in Mechanical Drawing: An Introductory Course. Coover. New York: McGraw-Hill Book Co., Inc., 1947. Pp. xviii+201. $1.48.

Teachability characterizes this workbook which has many unusual features. Assignments are such that they can be completed in one or two class periods so that interest does not lag. Supplementary assignments can be utilized in providing for individual differences. Problems are based on the interests of students, covering such items as softball diamonds and projects students can build in the shop. Blueprint reading, sketching, and home planning are covered and units are included on dimensioning and fasteners. Tests and a list of visual aids are given for each unit.

S. L. Coover is Director, Industrial-Arts Department, State Teachers College, California, Penna.

Aircraft Sheet Metal. Drake. New York: The Macmillan Co., 1947. Pp. ix+233. $5.50.

Designed to give the information and instruction needed to fulfill the sheetmetal requirements for the aircraft mechanic's license, this volume contains full information on the use and identification of metals and alloys used in aircraft work. Fabrication methods are described and theory is covered in simple terms. Nontechnical language is used throughout the book. Emphasis is placed on forming and joining sheetmetal and on the detection of faulty work. Numerous illustrations, glossaries, and photographs aid the reader. This is one of a series of books on aircraft by the same author.

Colonel Rollen H. Drake is a former vocational teacher in the Los Angeles, Calif., schools, CAA official, and Army supply specialist, and is now a research engineer and pilot and ground-school instructor.

Leathercraft. Thompson. New York: D. Van Nostrand Co., Inc., 1947. Pp. vii+140. $2.40, trade edition.

This book may be used as a course of study in leatherwork as it covers projects of graded difficulty as well as related information. Projects range from simple book marks to handbags and other items needing considerable skill. The first two chapters cover the history of leather and a description of present industrial methods of preparing leather and manufacturing leather products. The remaining ten chapters are devoted to project material and technics. Numerous photographs and drawings supplement the text.

Robert L. Thompson is Assistant Professor of Education, Department of Vocational Education, New York University.

Problems in Drafting and Design. Goff. Bloomington, Ill.: McKnight & McKnight, 1947. Pp. 117. $1.00.

An unusual approach is used in this book which is made up of a series of 50 drafting problems. All of the problems are related to the field of aeronautics in order to stimulate the interest of students and show direct application of drafting work. In addition, many photographs are used to accompany each problem. These photos show manufacturing processes, machines, and planes, thus further stimulating student interest and increasing knowledge of industrial practices. The problems are presented as perspective drawings with an assignment sheet accompanying each one. Dimensions are given in decimals to follow modern industrial practice.

F. L. Goff is a former teacher who is now Chief Draftsman, Eureka-Williams Corp., Bloomington, Ill.

Research in Industrial Arts Education by John L. Feirer is a report of a doctoral dissertation for the University of Oklahoma. It presents a thorough study of research as now required of and carried on by degree candidates in higher institutions and gives specific recommendations for the improvement of research in industrial-arts education.

Card Weaving by Lois I. Clifford is a 40-page pamphlet which gives in concise and detailed form the procedures for this type of loomless weaving. Numerous line drawings help to explain the text. The author is occupational director, West Pennsylvania School for the Blind, Pittsburgh. Published by the Manual Arts Press, Peoria, Ill.

Type Speaks is a 16mm sound motion picture in color which covers the historical background of foundry types and design and then shows the modern methods of design and manufacture. The research that goes into the modern practices in type founding is illustrated. Running time of the film is 25 minutes. Further information may be secured from the Education Department, American Type Founders, 200 Elmora Ave., Elizabeth B, N.J.

Curiosity Shop is a sound film in color which uses the narrative of an ambitious young research worker as a framework about which is built the story of the research and development in uses of aluminum. Available without cost to schools in 16mm and 35mm prints. Write the Aluminum Co. of America, 1775 Gulf Bldg., Pittsburgh 19, Pa.

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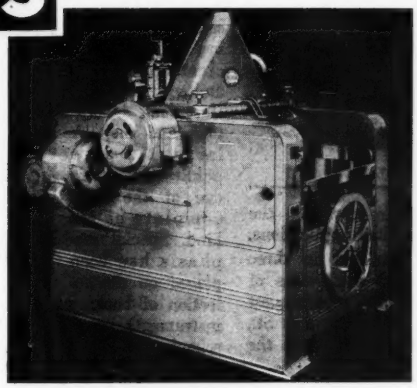

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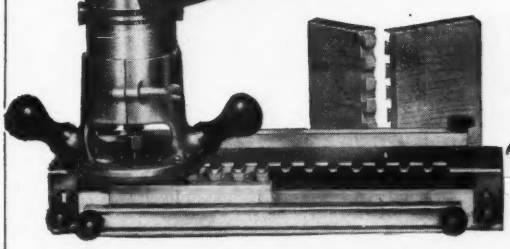

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Allied's 1948 catalog contains a comprehensive listing of radio and electronic parts and equipment for classroom, laboratory, and shop. A large 172-page publication, it is one of the most complete of its kind. Special emphasis has been placed on the selection of books, materials, training kits, test instruments, parts, and equipment required by schools for their radio and electronics training activities. More than 10,000 items are listed and completely indexed for quick reference.

The 1948 catalog will be sent without charge to shop teachers on request to Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill.; *or by checking no. 49 on the coupon.*

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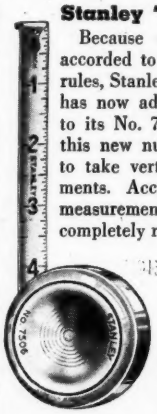

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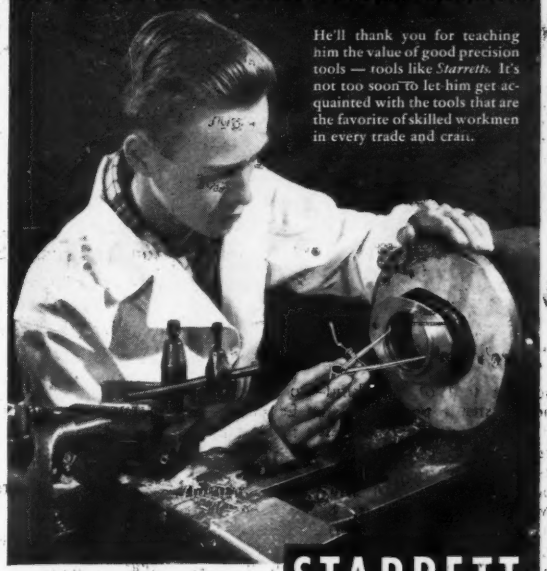

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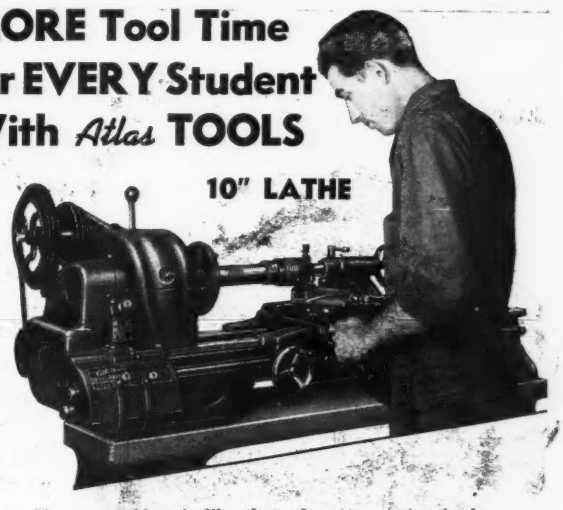

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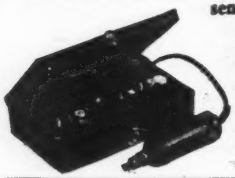

Strictly Personal

ABOUT YOUR FELLOW TEACHERS

MARTIN SCHELL, teacher in the Washington Vocational School, Pittsburgh, Pa., has been appointed principal of the West Penn Technical School, Pittsburgh. . . . SHRIVER L. COOVER, director of the industrial-arts curriculum at California, Penna., State Teachers College, has returned to his duties after a leave of absence for three years to work on a commission of the Institute of Inter-American Affairs which has been studying the school system of Chile. . . . HENRY A. SONSMITH has joined the teacher-training staff of the vocational education department of the University of Michigan. . . . ARMIN F. GIMBEL, formerly of the Joplin and Kansas City, Mo., schools, has been appointed to the faculty of the department of industrial education of the Southwest Missouri State College, Springfield. . . . MISS JANE BRYCE, principal of the Girls Trade School, Pittsburgh, Pa., died recently. . . . JAMES J. HAMMOND has succeeded WILLIS B. ANTHONY as head of industrial-arts teacher training at the State Teachers College, Fitchburg, Mass., on the latter's retirement. . . . HARTWELL MYERS has retired as principal of the Tilden Technical High School, Chicago, Ill. . . . New president of the Michigan Industrial Education Society is JOEL W. LEE, supervisor of industrial education, Owosso, Mich. . . . FLOYD ALLISON of the Detroit, Mich., schools, was given the Master Teacher's Award at the annual meeting of the Michigan Industrial Education Society in Grand Rapids.

From Washington... *from page 24*

1941. (The Commission takes the year 1941 as a "normal" prewar year.)

In predicting this apparent improvement in the supply of teachers spokesmen for the Commission, however, point out that two unmeasurable factors have to be taken into consideration:

First, not all of those training for industrial-arts jobs will go into teaching; some will inevitably take other work. Second, the demand for industrial-arts teachers today is much greater than it was in 1941; hence any percentage increase in the teacher supply over 1941 will be easily absorbed.

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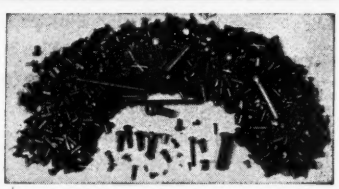

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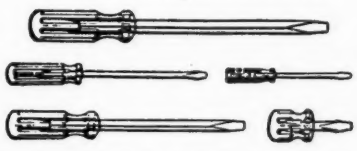

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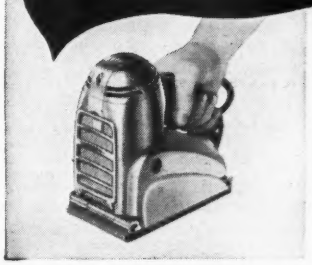

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FROM WASHINGTON

BY MICHAEL PACA

HERE is what will happen on the national scene during the brief summer respite from your school duties, as far as present signs can foretell. This look-ahead is for the next 85 or so days, until the September issue of SCHOOL SHOP reaches you.

Selective Service.—By September, we shall have selective service but no universal military training. The selective service law will probably be passed about the middle of June unless all observers fail in their predictions. At this moment it appears that young men between the ages of 19 and 25 will be called on to build up the Army, Navy, and Air Force from their present strength of 1,300,000 men to a total of over 2,000,000 by 1950.

The big question today is whether Congress will bear in mind that students in scientific and technological fields are not valuable when drilling with muskets. Educators in Washington would like to see the draft act written so that technological students would be kept out of reach of local draft boards but assigned by some national body to either additional training in schools, or to technical jobs where they can use their skills for national security.

Congress is not paying serious attention to the educators' pleas. Therefore, there is real danger that the new selective service law will repeat the mistakes of World War II, when some 40,000 technical students and men were wasted on army jobs which did not utilize their specialized skills.

Surplus Property.—By September, a new surplus property act may become law. This act will have little to do with granting discounts to schools or setting up priority bands for education; it will deal only incidentally with the remaining stocks of war surplus. Instead, it will be concerned with creating a long-range plan for disposing of property which federal bureaus and agencies no longer need during their normal course of activity. Administration officials feel that the disposal of property during peace years should not be hampered "by special benefits to special groups."

By September, however, another type of surplus property law, even more valuable to schools, may be enacted. This legislation (H. R. 5882 and H. R. 5859), on which the House Armed Services Committee held hearings early in May, would liberalize the donations of excess and surplus property for school purposes by the Secretaries of the Army, Navy, and Air Force. At the present time, such donations are limited to mechanical equipment useful in courses which the military wants to see encouraged. The new legislation would authorize the armed services to donate any excess property—including equipment, materials, and books — no longer needed by them. In turn, this excess material could be used by the schools in any way they see fit.

Interstate Schools. — By September, the southern states should have Congressional go-ahead for their planned regional, technical, and scientific institutes and colleges. The federal legislation to approve such interstate schools seems to have clear sailing ahead in both Houses at this writing.

The Congressional committees which studied the proposed educational compacts act say that it is in harmony with the Constitution and that it should "provide the states with greater educational facilities than any one state could provide with its own resources."

USES to Be Reshuffled.—The U. S. Employment Service, together with its affiliated public employment offices, will be considerably weaker in September than it is now. The House Appropriations Committee is determined to take the USES out of the Labor Department and combine it with the Bureau of Unemployment Compensation in the Federal Security Agency. The result is a new unit to be known as the Bureau of Employment Security. Similar consolidations will take place in the states if the committee has its way.

USES officials, who oppose the move, say that the new Bureau of Employment Security would be concerned first with paying out jobless checks to unemployed and only second with finding jobs for workers. Hence, they say, the job placement agency will be "crippled." The House committee, however, believes that paying out jobless benefit checks and finding jobs for unemployed are closely allied and should be carried on by one agency.

The USES may also be weakened by the fact that the House Appropriations Committee wants to do away with the job agency's counseling, job testing, and guidance functions. It is not recommending any funds for these purposes. Only a stiff fight by those who believe that a public employment service agency should also counsel workers, especially those just entering the labor market, will save these activities.

Possible Teacher Surplus.—By September, the supply of industrial-arts teachers should move toward a balance with the demand, the National Commission on Teacher Education predicts. A young crop of about 1500 future industrial-arts teachers now in training should be ready for jobs. This number is about 50 percent higher than was available in

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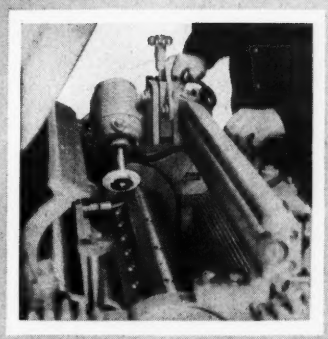

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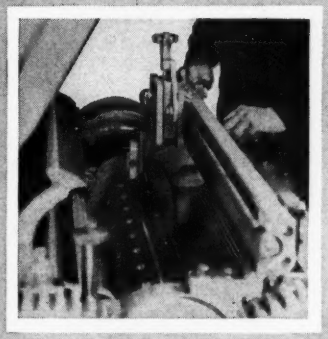
Below: Jointing attachment quickly replaces grinder, to true-up knives for precision cutting.



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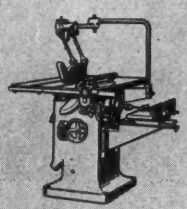

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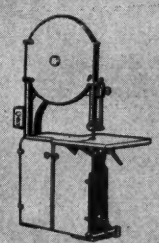

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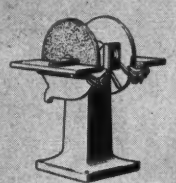

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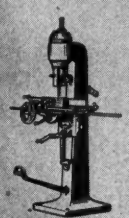

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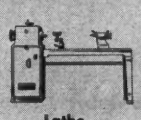

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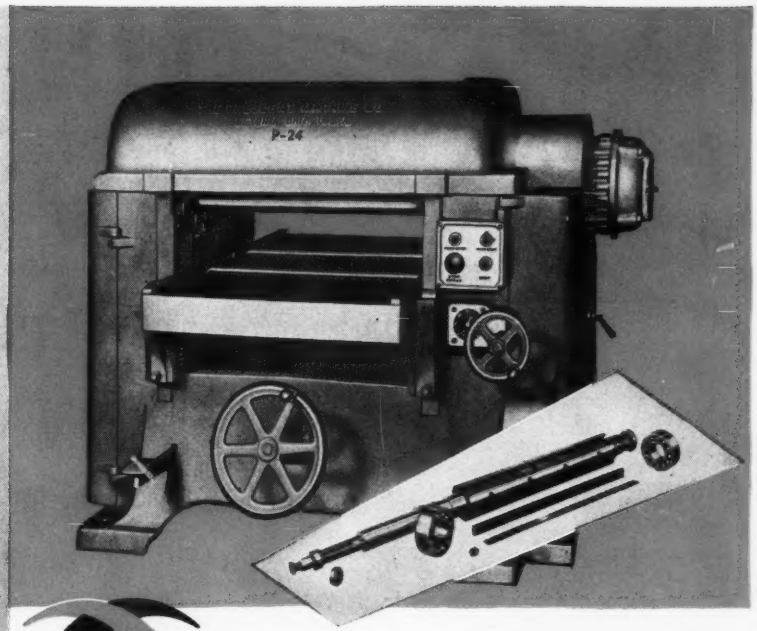

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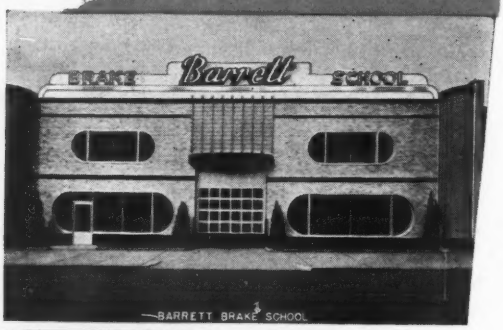

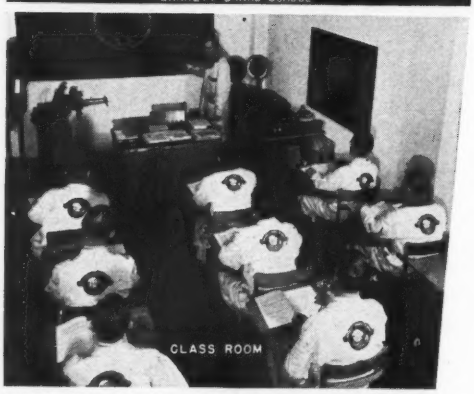

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